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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,168	11/26/2003	Pat A. Bolen	115584-00343	5533
27557	7590	01/09/2006	EXAMINER	
BLANK ROME LLP 600 NEW HAMPSHIRE AVENUE, N.W. WASHINGTON, DC 20037			HARVEY, JAMES R	
			ART UNIT	PAPER NUMBER
			2833	

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/721,168	Applicant(s) BOLEN ET AL.	
	Examiner James R. Harvey	Art Unit 2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Cancelled Claims

-- The cancellation of claims 11 and 12 has been noted.

Claim Rejections - 35 USC § 103

• The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

• Claim(s) 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauer (5230713) in view of Applicant's Admitted Prior Art and further in view of Carroll (6032359).

-- In reference to Claim(s) 1, Schauer shows (cover sheet)

a flexible flat cable 10 (column 3, line 33) having a series of parallel spaced conductors 11 (column 3, line 34) placed between a pair of insulating layers so that a thin layer of conductive material resides on an interior surface of the on of the insulating layers;

at least one end of the cable 10 having the insulating layer removed and exposing the conductors 11 (cover sheet), the conductors 11 being attached to contacts 14 (cover sheet) on a mounting header 17.

However, it is not clear if Schauer shows the particulars of the flexible flat cable having the conductors 11 placed between a pair of insulating layers.

Applicant's Admitted Prior Art shows (figures 1A-1C)

a flexible flat cable 10 (page 3, line 13) having a series of parallel spaced conductors 20 (page 3, line 14; and (figure 1c)) placed between a pair of transparent (page 3, line 15) insulating layers (page 3, line 14); and

at least one end of the cable having the insulating layer partially removed (page 3, line 18; stripped) and exposing the conductors 20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Schauer's flat cable 10 with Applicant's Admitted Prior Art's transparent cable. One skilled in the art would be motivated to substitute the cables because the transparent cable allows the user to inspect the conductor beneath the transparent insulation for possible irregularities that could cause the conductor to fail to carry the signal.

Both Schauer and Applicant's Admitted Prior Art show conductors on the insulating layers.

However, to the extent that Schauer or Applicant's Admitted Prior Art are not explicit as to the method of the conductors being printed onto one of the insulating layers, the method of forming (i.e. printing the conductors on the insulating layer) the device is not germane to the issue of patentability of the device itself; Therefore, this limitation has been given little patentable weight.

Further, Carroll teaches a dielectric that permits flexible bending with conductors (column 4, line 57) are printed (column 1, line 16) on the insulating layers 42 (figure 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve the terminal to flexible circuit mounting arrangement of Schauer as modified by Applicant's Admitted Prior Art with the teachings of Carroll.

One skilled in the art would be motivated because, as taught by Carroll (column 1, lines 25-29), Carroll's dielectric substrate with printed conducts permits a flexible bending of the substrate to accommodate locating the flexible circuit in applications where a less rigid printed circuit is required.

-- In reference to Claim(s) 6, Schauer shows (cover sheet) a clock spring for a vehicle (column 3, line 1-10) that has

a flexible flat cable 10 (column 3, line 33) having a series of parallel spaced conductors 11 (column 3, line 34) so that a thin layer of conductive material resides on an interior surface of the on of the insulating layers; at least one end of the cable 10 having the insulating layer partially removed and exposing the conductors 11 (cover sheet), the conductors 11 being attached to contacts 14 (cover sheet) on a mounting header 17 which is located in a connection module of the clockspring (column 3, line 1-10) for connection to other vehicular components 3.

However, it is not clear if Schauer shows the particulars of the flexible flat cable having the conductors 11 placed between a pair of insulating layers.

Applicant's Admitted Prior Art shows (figures 1A-1C)

a flexible flat cable 10 (page 3, line 13) having a series of parallel spaced conductors 20 (page 3, line 14; and (figure 1c)) placed between a pair of transparent (page 3, line 15) insulating layers (page 3, line 14); and

at least one end of the cable having the insulating layer partially removed (page 3, line 18; stripped) and exposing the conductors 20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Schauer's flat cable 10 with Applicant's Admitted Prior Art's transparent cable.

One skilled in the art would be motivated to substitute the cables because the transparent cable allows the user to inspect the conductor beneath the transparent insulation for possible irregularities that could cause the conductor to fail to carry the signal.

However, while both Schauer and Applicant's Admitted Prior Art show conductors on the insulating layers, neither Schauer or Applicant's Admitted Prior Art explicitly teach the method of the conductors being printed onto one of the insulating layers.

The method of forming (i.e. printing the conductors on the insulating layer) the device is not germane to the issue of patentability of the device itself; Therefore, this limitation has been given little patentable weight.

Further, Carroll teaches conductors (column 4, line 57) are printed (column 1, line 16) on the insulating layers 42 (figure 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve the terminal to flexible circuit mounting arrangement of Schauer as modified by Applicant's Admitted Prior Art with the teachings of Carroll.

One skilled in the art would be motivated because, as taught by Carroll (column 2, line 15), there is a need to develop a direct connection of a terminal to a flexible circuit that does not require solder.

-- In reference to Claim(s) 2, Schauer, as modified by Applicant's Admitted Prior Art and Carroll, shows (column 1, lines 1-10) that the mounting header 17 is adapted to be located in a connection module of a clockspring for electrical connection to other components.

-- In reference to Claim(s) 3 and 7, Schauer, as modified by Applicant's Admitted Prior Art and Carroll shows (cover sheet) the contacts 14 on the mounting header 17 are curved (bent; (column 3, line 63).

-- In reference to the recitation “ to provide a larger surface area for connection to the conductors in the flat cable” this is seen to be for the intended use of the claimed structure and is given little patentable weight. Further, Schauer does show that the longitudinal direction of the rectangular area 29 ((column 4, line 52; figure 5)) lies parallel with the length direction of the conductors 11 and if the contacts 14 were not curved (column 4, line 59) they would not provide as large of a surface area to the connecting places 15 of the conductors 11 (column 3, line 58) because both the connecting places 15 and the rectangular area 29 would not share the same longitudinal axis.

-- In reference to Claim(s) 4 and 8, Schauer, as modified by Applicant's Admitted Prior Art and Carroll, shows the conductors in the flat cable 10 (column 3, line 34; Schauer) are terminated at pads 15 (cover sheet; (figure 5; Schauer)) which are soldered (column 3, line 59; Schauer) to the contacts 14 on the mounting header 17.

-- In reference to Claim(s) 5 and 9, Schauer, as modified by Applicant's Admitted Prior Art and Carroll above, teaches (column 4, line 59; Schauer) that the contacts 14 that are mounted on the

header 17 can be straight and teaches circular apertures 24 (column 4, line 40; (cover sheet)) are in the flat cable 10.

However, Schauer, as modified by Applicant's Admitted Prior Art and Carroll above, does not show the contacts 14 are inserted through the circular apertures 24 on the flat cable 10 for electrical connection to the conductors thereon.

Carroll also teaches (figure 2d) that straight contacts 90 are inserted through circular apertures 80 (column 4, line 53; (figure 2d)) on the flat cable 22 and secured to the circular apertures for electrical connection to the conductors 20 thereon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve the contact 14 to flexible circuit 10 surface mounting arrangement of Schauer as modified by Applicant's Admitted Prior Art with the circular aperture 80 teachings of Carroll.

One skilled in the art would be motivated because, as taught by Carroll (column 2, line 15), there is a need to develop a direct connection of a terminal to a flexible circuit that does not require solder.

**** Claim(s) 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schauer, Applicant's Admitted Prior Art and Carroll as applied to claim 1 above, and further in view of Muzslay (5735697).**

-- In reference to Claim(s) 10, Schauer, as modified by Applicant's Admitted Prior Art and Carroll, shows the mounting header 17 (figure 3) is located on the flat cable 10 (figures 3 and 4), and the flat cable 10 further includes two extensions (5,7; “extending lines”; (column 3, line

21)) having connectors 19 ((cover sheet); (column 4, lines 25-30)) on the ends thereof. In reference to the recitation “for attachment to airbag canisters”, this recitation is seen to be for the intended use of the connector and has been given little patentable weight. However, Schauer connector 19 is seen to be able to be used for attachment to any number of electronic components including air bags.

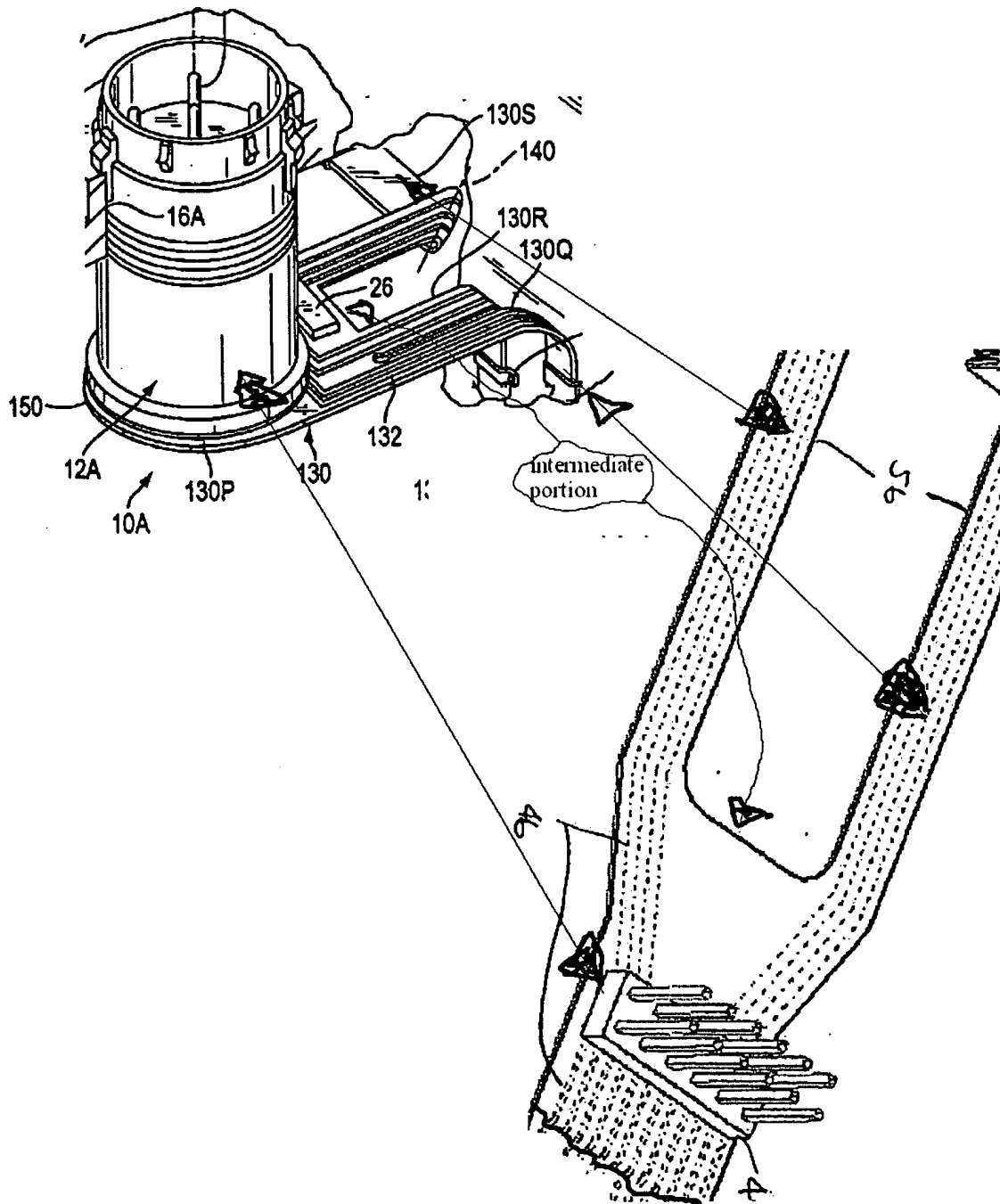
However, Schauer, as modified by Applicant's Admitted Prior Art and Carroll does not show the mounting header 17 is located on an intermediate portion of the flat cable 10 (it is seen to be located on an end portion).

The rearrangement of Schauer mounting header 17 from the end portion of the flat cable 10 to an intermediate portion is seen to be an obvious change in location, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70..

Muzslay shows (figure 10) substantially the same structure as that recited in claims 5 and 9 (see examiner's figure), Muzslay shows the mounting header 12A is located on an intermediate portion (figure 10; (between the two extreme portions (near the lead line of numerals 130S and 130Q ; (see attached definition from The American Heritage Dictionary))) of the flat cable 130, and the flat cable 130 further includes two extensions (130S, 130Q) having connectors (column 5, lines 20-23) on the ends thereof .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the arrangement shown by Muzslay to change the location of Schauer header from the end to an intermediate portion.

One skilled in the art would have been motivated in order place the connector in a location that meets the customer's preference or intended parameters.



Response to Applicant's Remarks

-- In response to applicant's assertion (page 5, penultimate line) concerning that the recitation so that a thin layer of conductive material resides on an interior surface of the on of the insulating layers, the examiner disagrees. Applicant's remark is seen to imply that the “flat conductors 11” (column 3, line 34) of Schauer are not thin and this is not correct. Schauer specifically states (column 3, line 35) that the conductors 11 inside the cable 10 are “particularly thin”.

-- In response to applicant's assertion (page 6, line 5) concerning that there is no suggestion to combine, the examiner disagrees. Applicant's remarks are seen to imply that the motivation given by the examiner does not apply. The Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In re.Nomiya, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971).

-- In response to applicant's assertion (page 6, penultimate line) concerning that Carroll does not show conductors on a substrate allow for a solder-less connection, that Carroll only teaches a substrate for receiving terminal pins (page 7, line 2) and that there is no link in Carroll between solderless connection and printed conductors (page 7, line 3), the examiner disagrees. The test for combining references is what the combination of disclosures taken as a whole would suggest

to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). Carroll teaches (column 1, line 22) that components connectors either passing through apertures in the flexible circuit or being seated on land pads (column 1, lines 19-24) and the combination of Carroll and the other references makes applicant's claim unpatentable.

-- In response to applicant's assertion (page 7, penultimate line) concerning that there is a conflict between the combination of references and the teachings of Carroll, the examiner disagrees. The examiner disagrees because it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. In re Keller, 208 USPQ 871 (CCPA 1981). Further, Carroll does teach that components are attached to the flexible circuit with component connectors either passing through apertures in the flexible circuit or being seated on land pads (column 1, lines 19-24).

Further, Carroll is a teaching reference that teaches that it is known to use thin conductive film on insulating layers. The fact that Carroll teaches through hole connections equivalent to applicant's species of figure 7 or soldered connection that are equivalent to applicant's species of figure 6 does not prevent teachings of Carroll in combination with the other references from making applicant's claims unpatentable.

-- In response to applicant's assertion (page 8, line 15) that Carroll does not teach contacts secured in the circular aperture, the examiner disagrees. During patent examination, the claims are given the broadest reasonable interpretation. See In re Morris, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). The meaning of "secured" is not set forth in the claims and is thus

deemed to be so broad that it is met by the applied references all showing some means of securing the connector contacts to the conductors within the cable.

-- In response to applicant's assertion (page 9, 10) that Muzslay could not be interpreted as teaching a mounting header located on an intermediate portion, the examiner disagrees. Muzslay is seen as a teaching element that teaches that prior to applicant's invention, it was known in the art that flat cables can have two extensions. To argue that Muzslay teaching do not apply to applicant's invention is not correct. It has been held that the test for obviousness is not whether the features of one reference may be bodily incorporated into the other to produce the claimed subject matter but simply what the combination of references makes obvious to one of ordinary skill in the pertinent art. In re Bozek, 163 USPQ 545 (CCPA 1969). In this instance, the combination of Muzslay and the other references makes applicant's subject matter of claim 10 unpatentable.

Conclusion

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to James R. Harvey whose telephone number is 571-272-2007. The examiner can normally be reached from 8:00 A.M. To 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 571-272-2800 extension 33.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

- All patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, **(571) 273-8300**, with a few exceptions. Replies to Office actions including after-final amendments that are transmitted by facsimile must be directed to the central facsimile number. Unofficial correspondence such as draft proposed amendments for interviews may continue to be transmitted by facsimile to the Technology Centers.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James R. Harvey, Examiner

jrh

December 31, 2005

